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A BRIEF TREATISE OF THE ANATOMY OF *HUMANE BODIES.*

In a New Method Plain and Easy to all Capacities. Demonstrating the Circulation of the Blood, and all Muscular Motion, from the Pressure of the Atmosphere.

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MVSEVM
BRITAN
NICVM

PREFACE.

THAT a Perſon may ſpeedily underſtand any Science, it is no ſmall help to have a general Idea of the whole, before he begins to enquire into it. It is by general Ideas that our Minds are allured to ſearch after particulars, and to give good or bad Judgments of thoſe things that offer themſelves to our ratiocination in our purſuit of knowledge. How much the mind of a Learner may be won on by a beautiful Deſcription of what he is about to learn, no one can be inſenſible? A Traveller is not a little pleaſed, nor is it ſmall advantage to him, to have a handſom and brief Deſcription of the Country he deſigns to viſit, and ſuch an one as he may eaſily retain

in his mind, to be ready to apply it to, and compare it with, the particular Occurrences he meets with in his Paſſage through the place.

Upon this account, it is hoped, this ſmall Tract may not prove uſeleſs in the World, notwithſtanding ſo many accurate Pieces that are publiſhed on the Subject. I have often thought; it might be of advantage to ſome who have not leiſure to pry into the particulars of larger Volumes, to have the whole Scheme of Anatomy, as it is improved by the inventions of our learned modern Virtuoſo's abridged; and I was the more encouraged to begin the Work my ſelf, when I found I cou'd very intelligibly ſolve the whole Circulation of the Bloud, and the Motion of all the Fluids in the Body, by Hydroſtatical Principles.

I cou'd flatter my ſelf, that the greateſt Proficient in the Study of Man's Body, may find ſomething of

Uſe and Moment in this ſmall Tract, which perhaps he may not have met with in any others: But as I am as much afraid of the vanity of applauſe, as ſome are ignorantly ſolicitous to impoveriſh their Minds by it; ſo, I wou'd have every Reader do me no more than bare juſtice, by acknowledging what he finds good.

A BRIEF TREATISE OF ANATOMY,

In a New Method Plain and Easy to all Capacities.

INTRODUCTION.

MAN is compos'd of Two Ingredients; first, a Body or visible Substance, whose Parts are more gross than the Air; secondly, a Soul, or Spirit, being

being an invisible Substance, of a subtile fluid Nature, of less specifick gravity than the Air.

The first of these Ingredients *viz.* Body, is only a Case or Sheath for the latter; therefore that the Sheath may be suitable to the Substance or Spirit sheath'd, 'tis requisite that these Sheaths, or Tubes, in which the Spirits are contain'd, or flow, be as minute as 'tis possible for them, and yet of a sufficient specifick gravity to rest and sink in the ambient Air, so as not to be disorder'd, or blown every way by it (like dust in wind) or have a continual endeavour to fly upwards (which were it of less specifick gravity than Air must ensue) and flote with its contain'd Spirit on the Atmosphere of this Earth.

The Body of Man when offer'd to the Scrutiny of an inquisitive Desection, will be found to be nothing but a beautiful folding together, or com-

complexure of little Fibers, Tubes, or Canals; as minute as may be, providing always they retain ſpecifick Gravity and Magnitude enough to ſink, and appear viſible, in the Air, or Medium, they are plac'd in.

For the containing thoſe Spirits which are deſign'd for the moſt noble Offices of rational Souls, and are, upon that account, very ſubtile, minute and volatile, we may rationally, enough, ſuppoſe that there are in Humane Bodies little inviſible Tubes, or Canals, of even a far leſs ſpecifick Gravity than Air; but theſe Tubes are Arm'd with ſeveral outer Coats, which at laſt become viſible. This may be ſuppos'd of all the Fibers that contain Spirit (which all do in the Texture of Mans Body, of ſome ſort or other; even the Fibers of the very outer Skin, or Epidermis, have cavities fill'd with a nutritious Juice or Spirit) that they conſiſt of ſeveral Coats or Caſes, and that the Spirit flows in the Inmoſt.

But 'tis the Part of an Anatomiſt to paſs by Conjectures, and confine himſelf wholly to thoſe Parts of the Body that appear viſible to the Eye.

To ſtrain, or ſubtilize Matter, and reduce it to a minuteneſs (leſs than Air) fit to joyn and nouriſh the Soul or Spirit, 'tis requiſite that theſe Fibers roul themſelves up into a texture and form of ſeveral ſubordinate Tubes of larger bore, to divide and ſeparate it (as Quick-ſilver is by ſtraining thro' the Tubes or Pores of Leather) leaving all droſſy and groſs Parts behind.

For this end Nature has Fram'd, out of Fibers, Four ſorts of Tubes ſerving for different Ends. The firſt or largeſt ſort are Guts, which receive and ſtrain the groſs Matter immediately as it is receiv'd from without. The Second are Veins which receive the Matter which the Stomach [which as being joyn'd to the Guts, and only blown up into a larger Form, for the con-

containing greater quantities of Matter, I treat of as part of the Guts] and Guts have fitted and purified. Thirdly, the Arteries which receive the Matter that the Veins Purifie by the Mediation of the Lungs: Which is such a gland for the fitting of the Venal Blood for the Arteries, as the Brain is for preparing Spirits out of the Arterial Blood. Fourthly, the Nerves which are a complication of the finest and most subtile Fibers, fill'd with the most volatile Spirit, to receive Matter which the Arteries have strain'd by the Brain (which I reckon belongs to the Arteries, and is only a Gland or Strainer issuing from them) and fitted for the nourishment and encrease of Spirit. Of each of these in Order.

What ever other Parts there are in Man's Body, they are only as Glands or Strainers which perform some subservient Office to one of these more eminent Ranks of Tubes; as the Lungs, Brain, Liver, Spleen, Panereas, Kid-

neys, &c. or they serve for Septums, or containing Parts for these Tubes, as the *Diaphragma*, *Omentum*, *Pleura*, *Mediastinum*, &c.

As for the Bones they seem to be Strainers belonging to the Brain (as well as supports and props for Nature) to separate the most pure oleaginous and refin'd of the medullary Substance, that they may contain within them (as in a Repository or Lamp) a sufficient Quantity of Oily Matter for the Soul, or Spirit, to Feed upon to keep in it's Flame, which wou'd go out without the supply of some such unctuous Substance. This is the Reason that the *Periosteum*, or thin Skin enwrapping the Bones, is of the most quick Sense, and the most affected with Pain of any Part in Humane Body, though the Bones in their own Nature are neither Sensible of Pleasure or Pain; the small and curious Fibers that compose the *Periosteum*, and send little Fibers into the very Marrow, (as may be perceived by the

Periosteums sticking so close to the Bone) have in them a Spirit of the most lively quick Motion (as being neareſt the Marrow on which the Spirits feed, of any in humane Body) which muſt neceſſarily cauſe in them a moſt quick Perception or Senſation.

CHAP. I.

Of the Inteſtines, or Guts.

SECT. I.

Of the Gula or Gullet.

THE Gullet being the Funnel by which Matter is convey'd into the Stomach and Guts, it is agreeable to order to treat of it firſt.

It is a round and hollow Tube, fram'd of Three Membranes or Coats; it begins at the root of the Tongue, behind the Larynx and Wind-pipe (where

(where it is called Pharynx) paſſing between the Wind-pipe and the Vertebræ, it paſſeth through the nervous Body of the Midriff, at a hole diſtinct from that of the great Artery; and is inſerted into the left Orifice of the Ventricle, about the Eleventh Vertebra of the Breaſt. It has Veins, Arteries, and Nerves belonging to it; it has alſo Four Glands or Strainers, Two in the Throat called Gonſillæ; and other Two about the middle of it.

SECT. II.

Of the Ventriculus or Stomach.

Man has but one Stomach, or Place, to reſolve and digeſt his Food in; but ſuch Four-footed Creatures as chew the Cud, eſpecially all that are horned, have Four Stomachs; ſuch Fowls as live upon Corn have Two Stomachs. The Stomach in Man is plac'd immediatly under the Midriff;

Midriff; in the Fore-part on the right ſide it is cover'd with the hollow part of the Liver, on the left ſide it is touch'd by the Spleen, towards the Back by the great Vein, the great Artery and Panereas, all which further its heat. It is compos'd of Three Membranes, or Textures of nervous Fibers; with a Parenchyma or ſlimy lining, to fill up the inequalities that ariſe from the texture of the Fibers. It has Two Orifices; one on the left ſide joyn'd to the Gullet, pretty wide to ſuffer Meat not well chewed to enter; the other on the right ſide by which the Chyle, or Food, reſolv'd in the Stomach deſcends to the Duodenum, or adjacent part of the Guts; it has Veins, Arteries, and Nerves peculiar to it ſelf, and is of a Figure moderately round.

SECT.

SECT. III.

Of those Parts more vulgarly call'd Guts.

They are of a membranous Substance like the Stomach, thinner in the small Guts, and thicker in the great, and the nearer they come to an end the thicker they are, as the end of the Colon and the Rectum; they have Three Coats as the Stomach.

The length of the Guts is about Six times the Parties length whose they are. They have Veins, Arteries, and Nerves proper unto them.

The Guts are distinguish'd into thin and thick: The thin are the Duodenum, Jejunum, and Ileum: The thick are the Cæcum, Colon and Rectum.

The

The Duodenum begins at the Pylorus, or right Orifice of the Stomach, paſſing under the Stomach towards the Spine Twelve Inches, from which ſuppos'd length 'tis call'd Duodenum.

The Jejunum or Hungry Gut is ſo call'd, becauſe it is for the moſt part found Empty; having a number of Milky Veins inſerted in it, that quickly abſorb up its Juice. It begins where the Duodenum ends, and where the Guts begin to roul themſelves up; 'tis Twelve Hands breadth in length.

The Ileum call'd ſo from the Greek Word, from which it is deriv'd, which ſignifies many turnings or windings; 'tis the longeſt and narroweſt of all the Guts, being Twenty one Hand-ſbreadth in length, but ſcarce an Inch in breadth, when it is twiſted or falls down the Iliac Paſſion enſues; cauſing a vomiting of the Dungy Excrement.

The Cæcum, or blind Gut, is ſo call'd, becauſe one end of it is ſhut, ſo that at the ſame Orifice the faces of the Chyle paſſeth and returneth; 'tis larger in moſt other Creatures than Man; it ſeems of very little uſe in grown healthy Men, being generally Empty; 'tis of chief uſe to the Fætus whilſt in the Womb, to ſtore up and retain the Excrement, of which in Infants new Born 'tis full, and extends to a far greater Magnitude than what it has when the Infant is grown to Man's Eſtate.

The Colon is the holloweſt and wideſt of the Guts, and detaineth the Excrements; it hath its beginning directly from the Cæcum, and tranſverſly from the Ileum. It twiſts it ſelf about the Guts, and paſſeth under the Stomach. Some think that the heat of the Excrement in it is a help to the digeſtion of the Stomach. 'Tis computed to be Seven Feet in length. It has a valve, where it is joyn'd to the Ileum, which ſo ſtops the hole, that

that though it suffers Excrements to descend from the Ileum into it, yet it hinders their regurgitating, or any noisom Vapours to ascend and taint the Chyle in the Ileum.

The Intestinum Rectum is joyn'd to the Colon, it is a Span in length, and proceeds to the Extremities of the Body.

CHAP. II.

SECT. I.

Of the Milky Veins.

THUS I have Finish'd my first Rank of Tubes, which are design'd by Nature to receive the most gross Matter from without, and by suffering it to dissolve, or resolve it self by digestion or putrefaction, to insinuate the finest part of its Substance

into the Veins the next Rank of Tubes to be treated of.

This Rank of Tubes is continued to the former, or Guts, by the mediation of the Milky Veins, found out, as ſuch, in the Year 1622, by one *Caſpar Aſellius* in deſſecting a Live Dog. They ſpring in an infinite Number from the inmoſt membrane of the Inteſtines; having their Mouths hid in a ſpongy Cruſt, or Mucus, through which the Chyle is ſtrain'd, by the preſſing of the Guts, into the little Tubes, ſuffering the excrementitious Parts to paſs on, whilſt in their Paſſage they continually meet with little capillary Mouths of Milky Veins, which ſuck their moiſture up, until having arriv'd at the Extremities of the Rectum, they are excluded by the Muſcles of the Anus. This is the reaſon that when Excrements have lain a great while in the Body, they are thruſt out ſo hard and void of Moiſture: The continual ſucking of the Mouths of

of the Milky Veins preying, or drawing any moiſture that is of a juicy Subſtance and will paſs through them. When the fibers of the Guts are too lax, and do not claſp the Excrements hard enough within them, either to ſqueze the Juice into the Milky Veins, or to detain them from paſſing ſo faſt by the Milky Veins, as not to give them Time to ſuck in, or abſorb the juicy Part of the Excrements, in either way of apprehending, a Looſneſs, or ſoftneſs, and moiſtneſs of Excrement muſt enſue. Theſe ſmall Milky Veins, which are inſerted in an Infinite Number in all Parts of the Guts, ought rather, according to my Method, to be refer'd to the Guts. Theſe all aſſoon as they Iſſue out of the Guts, more towards that one Part of the Meſentary to which all the Guts are knit, where all roul themſelves up into a Gland or Strainer, to mix and unite what every one has ſuck'd from the Guts. They from this Gland Match, ſometimes as it were together,

other whiles separating, 'till they roul themselves up into the great Gland or Strainer, commonly call'd the Pancreas or Melt. From thence having strain'd and purified their Juice, they all pass on with the purer Part of it (leaving the Dregs to be carried another way) 'till they form one common Duct, or Channel, commonly call'd the Receptacle of the Chyle, found out by *Pecquet*.

This Receptacle enters the Diaphragm with the great Artery, and passing through the Region of the Lungs is call'd the Ductus Thoracicus, where, ascending under the Pleura to the left Subclavian Vein, it enters, opening it self downward into the lower Side of the left Subclavian with a Valve.

It may not be amiss here to Speak of the Nature of Valves in General. A Valve is then nothing but a Number of little small Tubes,

or

or Diviſions, and Branches from the Tube, or Veſſel, from which they Iſſue. The Tubes that frame the Valve are of themſelves ſo fine and ſmall, that no Liquor cou'd paſs through their Bores, were not their Membranes forc'd wider, by the Juice which is driven, and preſs'd, with a great force into their ſmalleſt cavity, from the larger Part of the Tube, decreaſing gradually into the fineſt Filaments of the Valve. As ſoon as the Juice has paſs'd, or is forc'd through the little ends of theſe Fibres, the ſmall Box of the Fibres, which before was extremely (by a violent Force and Preſſure) relax'd, is again of its own accord ſtreighten'd, ſo that any Juice from without can by no means enter, or get into the Paſſage, from which the Juice by theſe little Fibers is brought.

Therefore as ſoon as theſe milky Veins have empty'd themſelves into the Subclavian Vein, with their Mouth downwards, the Chyle, or milky Juice, which

which they bring, passes with the Blood by the Vena Cava, or great Vein, to the Heart, without suffering any of the Blood in the Subclavian Veins to enter the Cavity of the milky Veins.

The Notion I have of a Vein in general, is that it is nothing but an empty Tube void of Air, or any Juice; consequently (as will happen to any Pipe, or Tube, out of which the Air is suck'd, when one end is plac'd in Water or any other Fluid) one end of a Vein plac'd where any juicy Liquor is, must suck it in by the Pressure of the Atmosphere, and other fluids by which it is surrounded, and which will not bear any Space, or Place, near them to have less Burthens than themselves. The milky Veins have this Suction, or Power of drawing Juices from the Guts. The Vena Cava, or great Vein, draws from these milky Veins (as well as from the extreme Parts of the Arteries)

ries) by the ſame Power, or Force, of which Vein I come now to ſpeak.

SECT. II.

Of the great Vein or Vena Cava.

For Method's ſake, it will be convenient to attribute the Riſe, or Spring, of this Vein to the Place where the milky Veins end, *viz.* the left Subclavian, juſt under the left Arm-pit, from which Place it deſcends, almoſt in a direct Line, paſſing through the Diaphragm, where, a little below, dividing it ſelf into many Branches, it forms the greateſt and moſt eminent Gland in the Body of Man, *viz.* The Liver. Whilſt this Vein is above the Heart, its Trunk is call'd the aſcending Trunk; whilſt below, the deſcending Trunk of the Vena Cava, and paſſing by the Heart, it ſends a notable Branch into its right Ventricle. The Blood, which is ſent into this

right Ventricle, is again ſuck'd out by the Pulmonick Artery, otherwiſe called the Vena Arterioſa. This Veſſel by its Branchings, and the Branchings of Air Veſſels, meeting with a Third Veſſel (or rather ſending from them a Third Veſſel) call'd the Pulmonick Vein, which carries Blood from the Lungs to the left Ventricle of the Heart, forms with the other Two, that notable Gland, or Strainer, call'd the Lungs, by wrapping and winding it ſelf ſo with them, as to mix the Air and the Blood together, which gives the Blood immediately a Scarlet Colour.

'Tis plain that all the other Veins in Man's Body are only Continuations of this Vein, but by their Situation and immediate Office have other Names aſſign'd them by Anatomiſts; for after this Vein has roul'd, and divided it ſelf into an infinite Number of little ſmall Fibres, and wove them together ſo, as to form the Texture we perceive in

the Liver, after this, I ſay, the Branches begin to unite into one Tube of a notable Bigneſs, which are call'd by Anatomiſts the Vena Porta from the Figure, which is like a Gate juſt as it enters the Liver.

To mention any other particular Veins, or the Names that are given them by Anatomiſts, wou'd make this Treatiſe more tedious and confus'd than I deſign it; the moſt prying and accurate Anatomiſt cou'd never find out, or give an account of all the little Branchings, and Ramifications of this great Tube, or Vein, through the Body of Men, according both to its external and internal Form.

I ſhall only further proceed to give the moſt comprehenſive Account, I can, of the Uſe and Nature of Veins in general.

The true and proper Riſe and Origine of Veins is in every particular

Part

Part of the Body: There can be no Portion of Fleſh, without having ſome capillar Veins inſerted. The Uſe that Nature has of theſe Tubes, is to ſuck up the Moiſture that is ſuperfluous, back again to the Heart, that ſo the Heart may again renew and refreſh it, and ſquirt or force it (or which will be equivalent, that it may be ſuck'd by the empty Arteries) to all Parts of the Body. The Superfluity being again embrib'd by the Veins, which are in all Parts of the Body, a conſtant Circulation muſt enſue, as long as there are any Juices, or that the Veſſels remain open and unobſtructed.

This conſtant Circulation ſeems beſt accounted for from the Motion of the Breaſt or Lungs, to which indeed, all maſcular or animal Motion muſt be attributed. My Notion of it is this; the Wind-pipe has little Branches, or Fibres, which lap or roul themſelves about as little Branches of Air Veſſels,

ſo

ſo that when the Wind Veſſels are fill'd with Air, the Blood Veſſels, about which they are wrap'd, muſt be ſqueez'd and empty'd, and when the Wind Veſſels empty themſelves, there will be a Vacuity in the Blood Veſſels, which were before ſqueez'd empty by the Fulneſs of the Air Veſſels, and conſequently this Vacuity will have the Force, or Power, of ſucking (as is ſeen in all Vacuities or empty Spaces) and drawing the neareſt Juices to it to fill its Cavity, *propter Fugam vacui*, as the Ancients held it, or to avoid a Vacuity.

That the Air Veſſels do thus wrap themſelves about the Blood Veſſels, which compoſe the Lungs, is acknowledg'd and held by moſt (if not all) modern Anatomiſts, and D. *Willis* ſeems to demonſtrate it in curious Figures both of the Wind-pipe and Lungs.

CHAP.

CHAP. III.

Of the Third Rank of Tubes, or of the Arteries.

SECT. I.

Of the Arteria Venosa, and the Motion of the Two Ventricles of the Heart.

THE Arteries are continued to the Veins by the Pulmonick Vein, call'd Arteria Venosa; which issues out of the Lungs, and is in reality no other than the re-uniting of the several Ramifications and Divisions of the Pulmonick Artery, which issues out of the right Ventricle of the Heart, and joyned with the Air Vessels, makes up the Texture of these Substances commonly call'd the Lungs. This Pulmonick Vein, though it be inserted into the left Ventricle of the Heart, to which the Arteries belong, yet

yet it has but one Coat (the Pulmonick Artery from the right Ventricle of the Heart, has Two Coats like an Artery) becauſe where the Air Veſſels ceaſe to compreſs the Blood Veſſels (as they do the Branches of the Pulmonick Artery) the Motion of the Blood flows very eaſy, ſmooth, and calm, with little or no Pulſation or Beating (as in the Arteries) into the left Ventricle of the Heart; but more eſpecially becauſe the Blood paſſes from ſmall Fibres into a wider Channel, which muſt cauſe the Motion in the Channel to be but ſlow and languid.

Before I proceed to ſpeak of the Arteries, I judge it requiſite to explain the Motion of the Heart from its Two Ventricles. Each Ventricle is divided into Two Parts, or Cavities, the upper of which is call'd the *Auricles* or *Auriculæ cordis*, theſe *Auricles* or Ears receive their Blood from the Veins, whilſt the Ventricles ſqueeze it out into the Arteries. The right *Auricle*,

or

or Ear, receives, or fills it self with Blood from the *Vena Cava*, or great Vein, whilst the right Ventricle that lies just under it, is squirting out its Blood into the Pulmonick Artery (or Lungs, which I make Synonimus.) When the Lungs by the Air Vessel ceasing to press them, suck up the Blood out of the right Ventricle and leave it empty, of consequence it must suck to it the Blood which fill'd its Auricle; which Auricle being left empty, must also to avoid a *Vacuum*, suck the Blood, or Juice, that is next it in the great Vein, which is continued to it.

By this way of Apprehension the Circulation of the Blood, with the differing Motions of the Heart, from its two fold Ventricles and Auricles, may plainly and clearly enough be accounted for. The left Auricle of the Heart (whilst the Lungs or Branches of the Pulmonick Artery are compress'd by the Admission of Air, which

swells

swells them like a Bladder at that instant) receives the Blood into its Cavity, which is extruded the Lungs, by the Passage of the Pulmonick Vein; and if we consider the Case right, we shall find, that whilst the left Auricle is receiving Blood from the Lungs, the right Auricle is emptying its Blood into its Ventricle, which had but just before discharg'd it self into the Lungs of that Blood, which the left Auricle now receives; so that the right Ventricle and left Auricle are full of Blood, when the left Ventricle and right Auricle are empty, and on the contrary.

SECT. II.

Of the great Artery, and all the rest flowing from it.

I come now to speak of the Arteries proceeding immediately from the left Ventricle of the Heart, and disperſing themselves (as the Veins) to every

Part both of the External and Internal Form of the Body.

And here what has been ſaid of the Veins, may be apprehended of the Arteries, as to the manner of their imbibing, or ſucking, up Juices that are immediately adjacent. All the Difference betwixt a Vein and an Artery, conſiſt in the Violence of the Motion the Blood receives within the Arteries, to what it has whilſt it flow'd within the Veins; this is plainly enough accounted for, in conſidering that when the Blood is ſuck'd up by the Veins, it is ſuck'd in by little Paſſages or Bores, which ſuffer but a very ſmall Quantity at a time to paſs, ſo that ſtreaming on into the larger Paſſages of the Veins, which unite themſelves in one hollow Tube, it can have but a ſlow and languid Motion: Becauſe the Blood is not ſent to it as faſt as it might imbibe it. But from the left Ventricle of the Heart, the Blood is ſuck'd up by the

the largest and widest Ends of the Arteries, so that they being full, thrust forward the Blood into the smaller Branches of the Arteries with great Violence, Force, and Haste, to make room for the next Stream of Blood (or contracting Motion of the left Ventricle of the Heart.)

This is easily understood, if we consider a Pipe, or Tube, of a tenacious or flexible Coat like a Gut, wide at one end and very narrow at the other: If this Tube, having its larger end inserted in Water, be suck'd at the smaller or slenderer end, the Water (or any other Fluid) will beat against, and violently extend the flexible sides in the narrower part of the Tube, and force it self forwards with as much haste as may be. But on the contrary, if the slenderer end of the Tube be put into Water, and the wider end suck'd at, the Water proceeding from a narrower Passage to a wider, cannot throughly fill the

wider Cavity, and conſequently cannot extend, or beat againſt its ſides; and therefore it muſt flow on to the wider end of the Tube gently and ſlowly. The Application is plain, the Veins reſemble the Tube, when the narrower end is emerg'd in Water, and the wider end ſuck'd at, which cauſes the venal Blood to move ſlow without Pulſation. The Arterial may properly enough be compar'd to the Tube when the ſmall end being ſuck'd at, the great end is plac'd in Water, cauſing a violent Extenſion of the ſmaller part of the Tube, the wider part containing more liquid than can be contain'd within the ſame length of the narrower Tube. This is the reaſon the Pulſe of a ſick Perſon is fought for from the Arteries, not the Veins.

More on this ſubject wou'd be ſuperfluous, the Arteries being exactly of the ſame Nature and Uſe as the Veins ſpoken of in the former Chap. (only the former have Two Coats, the

the better to bear Pulsation; the latter have but one; the former send Blood from the Heart to all parts of the Body; the latter bring the Blood from all parts of the Body back to the Heart again) therefore what has been said of the Veins need not be repeated over again of the Arteries. I shall then conclude this Chapter, and proceed to my last and noblest Rank of Tubes, *viz.* the Nerves with its Fibres.

CHAP. IV.

Of the Nerves.

AS the Veins send what excrementitious Juices are not fitly prepar'd to join with the Arterial Blood some other way, (being first strain'd from the venal Blood by some of the Glands, *viz.* Liver, Spleen, Pancreas, Kidneys, *&c.* and sent either back again to the Guts, or sent direct-

directly from the Body, as wholly unfit to perform any Office in the animal Oeconomy,) to the Arteries terminating themselves in every part of the Body, but more particularly, and in a greater Number in their proper Gland or Strainer, the Brain, send back by the Veins such Quantities of Juices as are not sufficiently prepared, or rendered, minute enough to flow within the nervous Fibres to enliven them to Motion and Action.

The great Artery dividing it self into Two Notable Branches at each side of the Wind-pipe, subdivides these Two into an infinite Number of smaller Branches of a Parenchymous Substance, which roul themselves up into the Form that we perceive in the Brain, out of which issues several Branches of Veins, descending to the great Vein, to carry back the Blood which is over and above what the Nerves take up for their use to make Spirits of. There are, continued from

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the finest Branches of the Arteries (which are drawn out so minute, that they may receive the purest and finest Blood only) Tubes decreasing and waxing slenderer from their Origine or Fountain till they run themselves into Filaments, or Fibres, too small to be perceived by the Eye. These Tubes (I make no question) have Cavities as well as the Veins, Arteries, and Guts, tho' not to be perceiv'd by the Eye: Of consequence, if these Tubes have Cavities, and yet their Bore, or Channel, be too small to suffer any Juice of greater gravity than Air to flow within them, they must (for all Cavity, or Space, will draw some Substance to fill it, 'tis impossible it should be even apprehended otherwise) draw from the Blood a fluid Juice of equal Gravity and Substance with the Air, or less and more minute than Air. This Juice, whatsoever it be, is what we may apprehend under the Name and Notion of Animal Spirit. And indeed, I don't know what other Notion can be fram'd, in the Imagination

tion of Spirit, or Juice, which fills the Nerves, and inflates the Muscles to move with so much Regularity and Order. Thus the Nerves appear to be the Continuation of Arteries by the Mediation of the Train; the Arteries are continued from the Veins, by the Mediation of the Lungs and Heart; the Veins are continued from the Guts, by the Mediation of the Milky Veins, and the Guts are a Continuation, or Texture, from the nervous Fibres. Thus does the whole Animal Frame continue to flow in an harmonious Ring or Circle, deriving from Air and grosser material Substances, such parts as may be of fit Substance, or suitable Form, to flow within every one of these several Ranks of Tubes.

MVSEVM BRITANNICVM F.L.N.J.S.